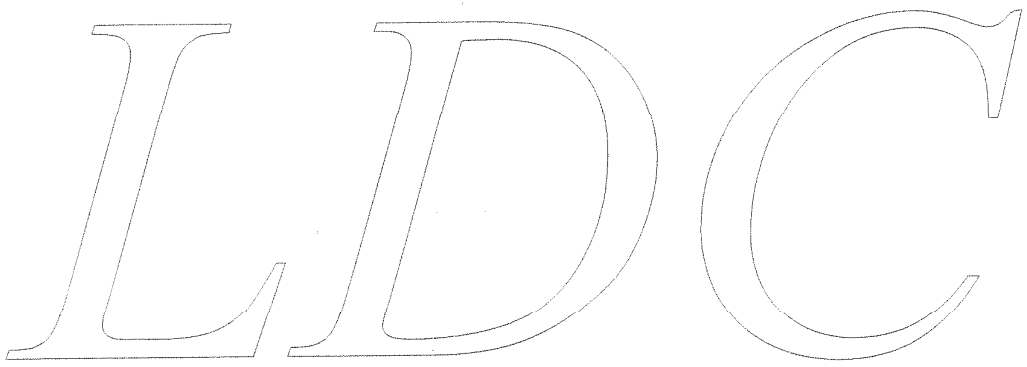
JPL, 00HW019
Data Validation Reports
LDC# 8848

Volatiles



Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 10, 2002

LDC Report Date: August 12, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-3782

Sample Identification

ER-20
MW-20-1
MW-20-2
MW-20-3
MW-20-4
MW-20-5
MW-20-4D
TB-5

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
7/11/02	Bromomethane	33.46	All samples in SDG 02-3782	J (all detects) UJ (all non-detects)	P

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
02G3109MB01	7/11/02	Methylene chloride	1.7 ug/L	All samples in SDG 02-3782

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
ER-20	Methylene chloride	0.6 ug/L	1U ug/L
MW-20-1	Methylene chloride	0.6 ug/L	1U ug/L
MW-20-2	Methylene chloride	0.8 ug/L	1U ug/L
MW-20-3	Methylene chloride	1.5 ug/L	1.5U ug/L
MW-20-4	Methylene chloride	1.1 ug/L	1.1U ug/L
MW-20-5	Methylene chloride	1.0 ug/L	1U ug/L
MW-20-4D	Methylene chloride	1.1 ug/L	1.1U ug/L
TB-5	Methylene chloride	0.9 ug/L	1U ug/L

Sample TB-5 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-5	7/10/02	Methylene chloride	0.9 ug/L	ER-20 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5 MW-20-4D

Sample ER-20 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-20	7/10/02	Methylene chloride	0.6 ug/L	MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5 MW-20-4D

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ER-20	Methylene chloride	0.6 ug/L	1U ug/L
MW-20-1	Methylene chloride	0.6 ug/L	1U ug/L
MW-20-2	Methylene chloride	0.8 ug/L	1U ug/L
MW-20-3	Methylene chloride	1.5 ug/L	1.5U ug/L
MW-20-4	Methylene chloride	1.1 ug/L	1.1U ug/L
MW-20-5	Methylene chloride	1.0 ug/L	1U ug/L
MW-20-4D	Methylene chloride	1.1 ug/L	1.1U ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-20-4 and MW-20-4D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-20-4	MW-20-4D	
Methylene chloride	1	1.1	10

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Volatiles - Data Qualification Summary - SDG 02-3782

SDG	Sample	Compound	Flag	A or P	Reason
02-3782	ER-20 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5 MW-20-4D TB-5	Bromomethane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-3782

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
02-3782	ER-20	Methylene chloride	1U ug/L	A
02-3782	MW-20-1	Methylene chloride	1U ug/L	A
02-3782	MW-20-2	Methylene chloride	1U ug/L	A
02-3782	MW-20-3	Methylene chloride	1.5U ug/L	A
02-3782	MW-20-4	Methylene chloride	1.1U ug/L	A
02-3782	MW-20-5	Methylene chloride	1U ug/L	A
02-3782	MW-20-4D	Methylene chloride	1.1U ug/L	A
02-3782	TB-5	Methylene chloride	1U ug/L	A

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-3782

SDG	Sample	Compound	Modified Final Concentration	A or P
02-3782	ER-20	Methylene chloride	1U ug/L	A
02-3782	MW-20-1	Methylene chloride	1U ug/L	A

SDG	Sample	Compound	Modified Final Concentration	A or P
02-3782	MW-20-2	Methylene chloride	1U ug/L	A
02-3782	MW-20-3	Methylene chloride	1.5U ug/L	A
02-3782	MW-20-4	Methylene chloride	1.1U ug/L	A
02-3782	MW-20-5	Methylene chloride	1U ug/L	A
02-3782	MW-20-4D	Methylene chloride	1.1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 16, 2002

LDC Report Date: August 12, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-3852

Sample Identification

ER-22
FB-1
MW-22-1
MW-22-2
MW-22-3
MW-22-3D
TB-9
MW-22-2MS
MW-22-2MSD

Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% .

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
02G3180MB01	7/18/02	Methylene chloride	1.6 ug/L	All samples in SDG 02-3852

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
ER-22	Methylene chloride	1.2 ug/L	1.2U ug/L
FB-1	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-22-1	Methylene chloride	1.1 ug/L	1.1U ug/L
MW-22-2	Methylene chloride	1 ug/L	1U ug/L
MW-22-3	Methylene chloride	1.4 ug/L	1.4U ug/L
MW-22-3D	Methylene chloride	1.1 ug/L	1.1U ug/L
TB-9	Methylene chloride	0.8 ug/L	1U ug/L

Sample TB-9 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-9	7/16/02	Methylene chloride	0.8 ug/L	ER-22 FB-1 MW-22-1 MW-22-2 MW-22-3 MW-22-3D

Sample ER-22 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-22	7/16/02	Methylene chloride	1.2 ug/L	MW-22-1 MW-22-2 MW-22-3 MW-22-3D

Sample FB-1 was identified as a field blank. No volatile contaminants were found in this blank with the following exceptions:

Field Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB-1	7/16/02	Methylene chloride	1.2 ug/L	MW-22-1 MW-22-2 MW-22-3 MW-22-3D

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ER-22	Methylene chloride	1.2 ug/L	1.2U ug/L
FB-1	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-22-1	Methylene chloride	1.1 ug/L	1.1U ug/L
MW-22-2	Methylene chloride	1 ug/L	1U ug/L
MW-22-3	Methylene chloride	1.4 ug/L	1.4U ug/L
MW-22-3D	Methylene chloride	1.1 ug/L	1.1U ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
02G3180MB01	Chlorobenzene-d5	337736 (339207-629957)	Dibromochloromethane 1,1,2-Trichloroethane Bromoform Tetrachloroethene Toluene Chlorobenzene 1,3-Dichloropropane 1,2-Dibromoethane 1,1,1,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	P
ER-22	Chlorobenzene-d5	335336 (339207-629957)	Dibromochloromethane 1,1,2-Trichloroethane Bromoform Tetrachloroethene Toluene Chlorobenzene 1,3-Dichloropropane 1,2-Dibromoethane 1,1,1,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	P
MW-22-1	Fluorobenzene Chlorobenzene-d5	505093 (520650-966921) 325449 (339207-629957)	1,1,2,2-Tetrachloroethane Ethylbenzene Styrene 1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2,4 Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene m,p-Xylenes o-Xylene Dibromochloromethane 1,1,2-Trichloroethane Bromoform Tetrachloroethene Toluene Chlorobenzene 1,3-Dichloropropane 1,2-Dibromoethane 1,1,1,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	P

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
MW-22-2	Fluorobenzene Chlorobenzene-d5	504091 (520650-966921) 319888 (339207-629957)	1,1,2,2-Tetrachloroethane Ethylbenzene Styrene 1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene m,p-Xylenes o-Xylene Dibromochloromethane 1,1,2-Trichloroethane Bromoform Tetrachloroethene Toluene Chlorobenzene 1,3-Dichloropropane 1,2-Dibromoethane 1,1,1,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	A
MW-22-3	Fluorobenzene Chlorobenzene-d5 1,2-Dichlorobenzene-d4	490995 (520650-966921) 309814 (339207-629957) 190174 (190917-354561)	All TCL compounds	J (all detects) UJ (all non-detects)	P
MW-22-3D	Fluorobenzene Chlorobenzene-d5 1,2-Dichlorobenzene-d4	490131 (520650-966921) 308311 (339207-629957) 188423 (190917-354561)	All TCL compounds	J (all detects) UJ (all non-detects)	P
TB-9	Chlorobenzene-d5	312271 (339207-629957)	Dibromochloromethane 1,1,2-Trichloroethane Bromoform Tetrachloroethene Toluene Chlorobenzene 1,3-Dichloropropane 1,2-Dibromoethane 1,1,1,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	P

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-22-3 and MW-22-3D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-22-3	MW-22-3D	
Methylene chloride	1.4	1.1	3

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-3852

SDG	Sample	Compound	Flag	A or P	Reason
02-3852	ER-22 TB-9	Dibromochloromethane 1,1,2-Trichloroethane Bromoform Tetrachloroethene Toluene Chlorobenzene 1,3-Dichloropropane 1,2-Dibromoethane 1,1,1,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	P	Internal standards (area)
02-3852	MW-22-1	1,1,2,2-Tetrachloroethane Ethylbenzene Styrene 1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene m,p-Xylenes o-Xylene Dibromochloromethane 1,1,2-Trichloroethane Bromoform Tetrachloroethene Toluene Chlorobenzene 1,3-Dichloropropane 1,2-Dibromoethane 1,1,1,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	P	Internal standards (area)

SDG	Sample	Compound	Flag	A or P	Reason
02 3852	MW-22-2	1,1,2,2-Tetrachloroethane Ethylbenzene Styrene 1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene m,p-Xylenes o-Xylene Dibromochloromethane 1,1,2-Trichloroethane Bromoform Tetrachloroethene Toluene Chlorobenzene 1,3-Dichloropropane 1,2-Dibromoethane 1,1,1,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	A	Internal standards (area)
02-3852	MW-22-3 MW-22-3D	All TCL compounds	J (all detects) UJ (all non-detects)	P	Internal standards (area)

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Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-3852

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
02-3852	ER-22	Methylene chloride	1.2U ug/L	A
02-3852	FB-1	Methylene chloride	1.2U ug/L	A
02-3852	MW-22-1	Methylene chloride	1.1U ug/L	A
02-3852	MW-22-2	Methylene chloride	1U ug/L	A
02-3852	MW-22-3	Methylene chloride	1.4U ug/L	A

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
02-3852	MW-22-3D	Methylene chloride	1.1U ug/L	A
02-3852	TB-9	Methylene chloride	1U ug/L	A

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-3852

SDG	Sample	Compound	Modified Final Concentration	A or P
02-3852	ER-22	Methylene chloride	1.2U ug/L	A
02-3852	FB-1	Methylene chloride	1.2U ug/L	A
02-3852	MW-22-1	Methylene chloride	1.1U ug/L	A
02-3852	MW-22-2	Methylene chloride	1U ug/L	A
02-3852	MW-22-3	Methylene chloride	1.4U ug/L	A
02-3852	MW-22-3D	Methylene chloride	1.1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 18, 2002

LDC Report Date: August 12, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-3905

Sample Identification

MW-23-2
MW-23-3
ER-23
TB-11
MW-23-1
MW-23-3MS
MW-23-3MSD

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
7/23/02	Bromomethane	30.69	All samples in SDG 02-3905	J (all detects) UJ (all non-detects)	P

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
02G3239MB01	7/23/02	Methylene chloride	0.6 ug/L	All samples in SDG 02-3905

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
MW-23-2	Methylene chloride	0.5 ug/L	1U ug/L
MW-23-3	Methylene chloride	0.5 ug/L	1U ug/L
ER-23	Methylene chloride	0.5 ug/L	1U ug/L
TB-11	Methylene chloride	4.4 ug/L	4.4U ug/L
MW-23-1	Methylene chloride	0.5 ug/L	1U ug/L

Sample TB-11 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-11	7/18/02	Methylene chloride	4.4 ug/L	MW-23-2 MW-23-3 ER-23 MW-23-1

Sample ER-23 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-23	7/18/02	Methylene chloride	0.5 ug/L	MW-23-2 MW-23-3 MW-23-1

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-23-2	Methylene chloride	0.5 ug/L	1U ug/L
MW-23-3	Methylene chloride	0.5 ug/L	1U ug/L
ER-23	Methylene chloride	0.5 ug/L	1U ug/L
MW-23-1	Methylene chloride	0.5 ug/L	1U ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-3905

SDG	Sample	Compound	Flag	A or P	Reason
02-3905	MW-23-2 MW-23-3 ER-23 TB-11 MW-23-1	Bromomethane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-3905

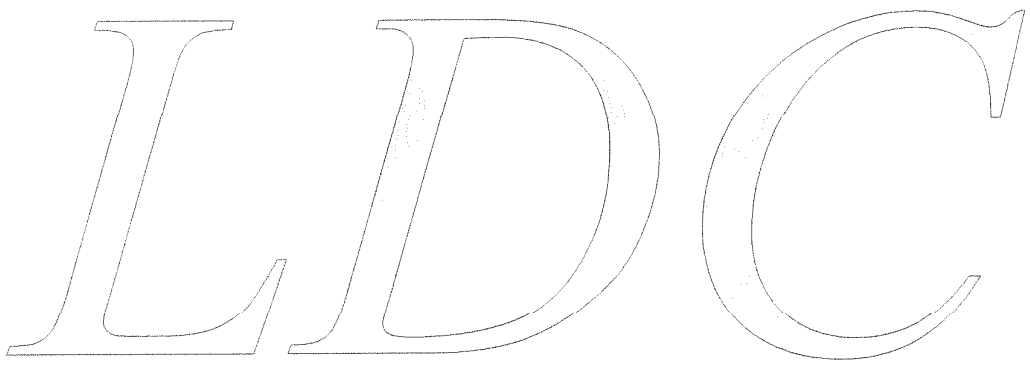
SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
02-3905	MW-23-2	Methylene chloride	1U ug/L	A
02-3905	MW-23-3	Methylene chloride	1U ug/L	A
02-3905	ER-23	Methylene chloride	1U ug/L	A
02-3905	TB-11	Methylene chloride	4.4U ug/L	A
02-3905	MW-23-1	Methylene chloride	1U ug/L	A

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-3905

SDG	Sample	Compound	Modified Final Concentration	A or P
02-3905	MW-23-2	Methylene chloride	1U ug/L	A
02-3905	MW-23-3	Methylene chloride	1U ug/L	A
02-3905	ER-23	Methylene chloride	1U ug/L	A
02-3905	MW-23-1	Methylene chloride	1U ug/L	A

JPL, 00HW019
Data Validation Reports
LDC# 8848

Wet Chemistry



Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 10, 2002

LDC Report Date: August 7, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-3782

Sample Identification

ER-20
MW-20-1
MW-20-2
MW-20-3
MW-20-4
MW-20-5
MW-20-4D
MW-20-4DMS
MW-20-4DMSD

Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196 for Hexavalent Chromium and EPA Method 314.0 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met.

Instrument detection limits, interelement corrections and linear range analysis were performed at the required frequency with the following exceptions:

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Perchlorate	ICAL	11/14/01	Every 6 months	7/16/02	All samples in SDG 02-3782	None	P

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-20 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Sample Result Verification

All sample result verifications were within validation criteria.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples MW-20-4 and MW-20-4D were identified as field duplicates. No contaminant concentrations were detected in any of the samples.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-3782

SDG	Sample	Analyte	Flag	A or P	Reason
02-3782	ER-20 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5 MW-20-4D	Perchlorate	None	P	Initial calibration

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-3782

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-3782

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 16, 2002

LDC Report Date: August 7, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-3852

Sample Identification

ER-22
MW-22-1
MW-22-2
MW-22-3
MW-22-4
MW-22-3D
ER-22MS
ER-22MSD

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196 for Hexavalent Chromium and EPA Method 314.0 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

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A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met.

Instrument detection limits, interelement corrections and linear range analysis were performed at the required frequency with the following exceptions:

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Perchlorate	ICAL	11/14/01	Every 6 months	7/14/02	ER-22 MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-3D	None	P

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-22 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Sample Result Verification

All sample result verifications were within validation criteria.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples MW-22-3 and MW-22-3D were identified as field duplicates. No contaminant concentrations were detected in any of the samples.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-3852

SDG	Sample	Analyte	Flag	A or P	Reason
02-3852	ER-22 MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-3D	Perchlorate	None	P	Initial calibration

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-3852

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-3852

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 18, 2002

LDC Report Date: August 7, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-3905

Sample Identification

MW-23-4
MW-23-2
MW-23-3
ER-23
MW-23-5
MW-23-1
MW-23-4MS
MW-23-4MSD

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196 for Hexavalent Chromium and EPA Method 314.0 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

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I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met.

Instrument detection limits, interelement corrections and linear range analysis were performed at the required frequency with the following exceptions:

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Perchlorate	ICAL	11/14/01	Every 6 months	7/22/02	All samples in SDG 02-3905	None	P

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
7/22/02	CCV1	Perchlorate	114 (90-110)	MW-23-4 MW-23-2 MW-23-4MS MW-23-4MSD	J (all detects)	P

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-23 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Sample Result Verification

All sample result verifications were within validation criteria.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-3905

SDG	Sample	Analyte	Flag	A or P	Reason
02-3905	MW-23-4 MW-23-2 MW-23-3 ER-23 MW-23-5 MW-23-1	Perchlorate	None	P	Initial calibration
02-3905	MW-23-4 MW-23-2	Perchlorate	J (all detects)	P	Calibration (%R)

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-3905

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-3905

No Sample Data Qualified in this SDG

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

SOTA Environmental
16835 W. Bernardo, Drive, Suite 212
San Diego, CA 92127-1813
ATTN: Ms. Yu Zeng

August 13, 2002

SUBJECT: JPL, 00HW019, Data Validation

Dear Ms. Zeng,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on August 6, 2002. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 8865:

SDG #	Fraction
02-3938, 02-3965	Volatiles, Wet Chemistry

The data validation was performed under EPA Level IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996

Please feel free to contact us if you have any questions.

Sincerely,

Richard M. Amano
President/Principal Chemist

Attachment 1

LDC #8865 (Sota Environmental-San Diego / JPL, 00HW019)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (524.2)		CRVI (7196)		CLO_4 (314.0)																									
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	02-3938	8-6-02	8-27-02	7	0	7	0	6	0																								
B	02-3965	8-6-02	8-27-02	5	0	8	0	4	0																								
Total	B			12	0	15	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)